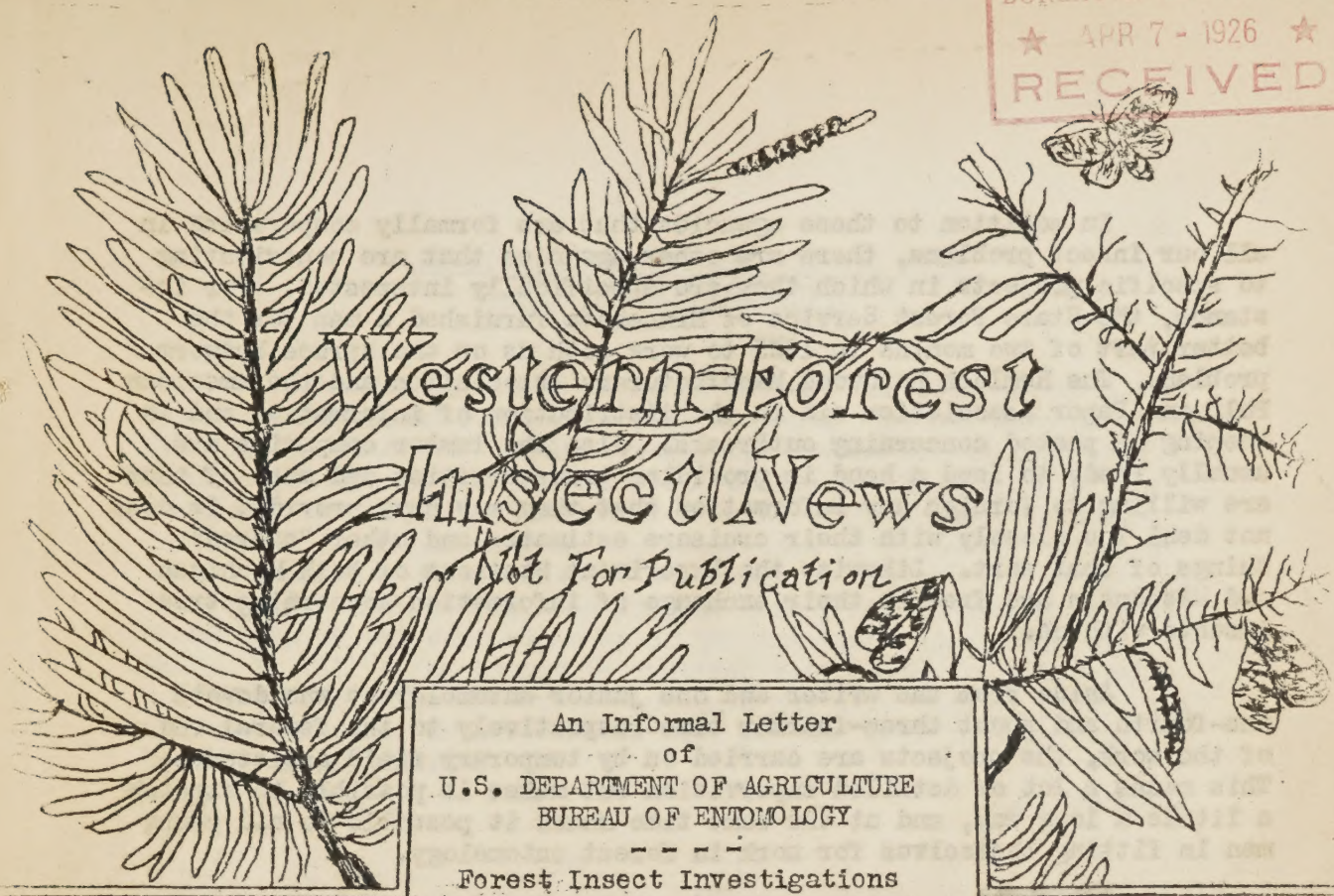


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A detailed line drawing of a pine branch with several long, needle-like leaves. A caterpillar is shown crawling on one of the leaves. A butterfly is depicted in flight near the top right of the branch. The title 'Western Forest Insect News' is written in a stylized, outlined font across the middle of the illustration.

# Western Forest Insect News

Not For Publication

An Informal Letter  
of  
U.S. DEPARTMENT OF AGRICULTURE  
BUREAU OF ENTOMOLOGY

Forest Insect Investigations

P. O. Box 3010, Stanford University, Calif. -- April 1, 1926.

## THE FOREST ENTOMOLOGICAL SITUATION IN THE LAKE STATES.

By

S. A. Graham.

It would seem appropriate that this note, the first effort from the Lake States, should summarize briefly the general entomological situation in this section and the projects that are under way, and later, if our further efforts are desired, notes of a more specific character might well be presented.

Perhaps an outline of the organization of the work should take first place. The forest entomological work in this section is on a strictly cooperative basis. The Bureau, the University of Minnesota, and the Forest Service, through the Lake States Forest Experiment Station have combined forces to work on these problems. This is a true co-operative triumvirate in every sense of the word wherein each member contributes a specific and concrete part to the furtherance of our problems. The financial burden is divided about equally between the Bureau of Entomology and the University of Minnesota. The Lake States Experiment Station has provided invaluable advice and assistance in keeping us in touch with the situation as a whole and in helping us to make valuable contacts. At one point the work has reached out into the Nebraska sand hills and taken over the tip moth problem on the Bessey Plantations near Halsey. In this problem the Forest Service is aiding financially and in other ways.



In addition to these agencies that are formally cooperating in all our insect problems, there are other agencies that are contributing to specific projects in which they are specifically interested. For instance, the State Forest Service of Minnesota furnished a man for the better part of two months in 1925 to work with us on the spruce budworm problem. The Hemlock Hardwood Manufacturers Association and the American Pulp and Paper Association aid in the distribution of information and in keeping us posted concerning outbreaks. Also the lumber companies are usually ready to lend a hand in providing transportation and most of them are willing to furnish any information that they may have provided it does not deal too closely with their cruisers estimates and other "sacred" things of that sort. Likewise the Experiment Stations of both Michigan and Wisconsin are free in their exchange of information concerning tree insects with us.

Aside from the writer and one junior entomologist who devote one-fourth and about three-fourths time respectively to the federal end of the work, the projects are carried on by temporary field assistants. This means a lot of detailed supervision but makes it possible to stretch a little a long way, and at the same time makes it possible to aid young men in fitting themselves for work in forest entomology.

The problems in the Lake States are very different from those in the West where the barkbeetles hold the center of the stage. Here we have no serious barkbeetle problem. The barkbeetles are decidedly secondary in nature. This is in part because we do not have many dangerous species and in part because of the character of the forest which is mostly second growth following either logging or fire.

Here instead of the barkbeetles the defoliators have the chief role. The spruce budworm, the larch sawfly, the jack pine sawfly, the pine tussock moth, the forest tent caterpillar and the hemlock looper are some of those that have proved to be serious pests on the basis of past experience. At the present time we are concentrating our efforts upon three of these pests: the spruce budworm, the jack pine sawfly, and the larch sawfly. Incidentally the bronze birch borer which is associated with the budworm and is an important pest in second growth birch is being studied. In addition to the above we have underway one of the most interesting of problems in the tipmoth in Nebraska. Each of these projects is sufficient to make a news item in itself and perhaps it would be well to postpone discussion of them until a later time.



APPROPRIATION PROVIDES FOR BIG HOLE  
BASIN CONTROL PROJECT.

The sum of twelve thousand dollars has been provided for control work in the Big Hole Basin, Montana. The Big Hole Basin lies on the east side of the Continental Divide across from the severe epidemic of the mountain pine beetle in the lodgepole pine stands of the Bitterroot National Forest. This project is being instituted in the hopes that the occurrence of a similar epidemic in the Basin can be prevented. An intensive cruise will be made of the region, which covers some 150,000 acres, and as near as possible a one hundred per cent clean up of the existing infestation will be made. It will be necessary to continue this project for several years, or until the Bitterroot epidemic has died down or passed by. The entomological supervision of this project will be under the Coeur d'Alene Station.

J. C. Evenden.

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THE DISTRICT SIX INVESTIGATIVE COMMITTEE MEETING.

The annual meeting of the District Six (Oregon and Washington) Investigative Committee of the Forest Service was held in Portland on February 15 for consideration of the forest research program for the year 1926. It was hoped that Mr. Evenden would be in Portland to represent the Bureau but the postponement of his trip to Portland and Palo Alto made it necessary for the writer to acquaint the committee with the investigative work of the Division of Forest Insects.

The Committee went on record as urging the Forest Service to use its influence to help the Bureau to enlarge its forest insect research in the Pacific Northwest.

At the meeting special interest was shown in the problem of protecting forest trees of high value on recreation areas and summer homesites in the National Forests against bark beetle attacks. This problem is especially acute just now in certain lodgepole recreation areas in southern Oregon.

A.J. Jaenicke.



### \$62,000 LOST TO U. S. TREASURY!

According to a report from the Forest Service receipts amounting to \$158,500.00 were received from the sale of 23,500,000 feet of timber on an area of 640 acres in Uranus Creek, Coeur d'Alene National Forest. Ninety percent of the cut was white pine, which sold for \$12.40 per M. stumpage. This was mature timber, age 140 to 160 years. The trees averaged 6 logs per tree running 10½ logs per M.

On the area it is estimated there is 5,000,000 board feet of bug killed white pine timber which died since 1910. Had this timber been protected it would have added \$62,000 to the receipts from this sale.

J.M. Miller.

### SOME BARK BEETLES DO SWARM

On August 8th, 1919, while camped on the shores of Coeur d'Alene Lake a swarm of Eccoptogaster (Scolytus) subscaber Lec. was recorded. The beetles settled upon the north side of a white tent and in a few seconds thousands of them had covered the surface. From the time the first few beetles were noticed the entire swarm had settled in less than two minutes. After striking the tent the insects crawled upward for a few inches and then remained motionless until leaving. This swarm remained upon the tent for over an hour or until after dusk when they disappeared gradually and not as a swarm. On the 7th of August one specimen was collected from the tent, but on the 9th and 10th no further flights were recorded.

Though this does not answer the question as to Dendroctonus beetles the writer does know that this species does, under certain conditions perhaps, swarm.

J.C. Evenden.



## INSECT LOSSES ON CUTOVER AREAS

During the past two years 25 cutover areas in six National Forests of District 5 have been studied to determine the importance of insect losses in relation to forest management plans. It was found that while most of the cutover areas are comparatively free from insect injury the losses on some of the areas are strikingly high. On the areas studied this loss varied from 15% of the increment to as much as 21 times the increment. On one of the Shasta areas 15% of the total stand that was left after logging was killed in one year. This is an extreme case but it was evident that on some of the poorest sites on the Shasta Forest the insects are killing off the entire reserve stand. A number of areas were also found on the Sierra and Stanislaus Forests where the insect loss is too high to be profitably neglected. The Lassen Forest and with one exception, the Plumas Forest, on the other hand, have very little insect loss on the cutover areas.

On the basis of the data secured it was concluded that:

The loss on areas logged within the last few years is apparently no greater than the loss on areas logged 15 or more years ago.

The heaviest losses are found on the poorest sites.

The loss varies in general with the infestation in the surrounding timber.

The western pine beetle kills the slowest growing trees.

It is believed that the loss can be reduced by the taking out of all trees with a growth rate below a certain minimum, this minimum to be determined for each site.

Where a heavy insect loss is a probability it might be advisable to cut all merchantable trees except where necessary to protect the site.

H. L. Person

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## DEVILS TOWER MONUMENT PROJECT

Control measures will no doubt be instituted during the coming season against an outbreak of the Black Hills Beetles in the yellow pine stands of the Devils Tower Monument, Wyoming. This monument is but a few miles west of the Black Hills National Forest where from 1897 to 1907 a serious epidemic of this insect occurred. In view of this fact it is believed that all outbreaks of the Black Hills Beetle, especially in this region, should be checked in their incipency. A representative from the Occur d' Alene Station will spend a few days in the area during the latter part of March instructing the Custodian of the Monument, under whose supervision the work will be conducted, as to the trees to be treated and the method to be used. It is thought that there will be approximately five hundred trees to be treated.

J. C. Evenden.



CONTROL MEASURES TO BE INSTITUTED AGAINST  
DENDROCTONUS DEVASTATION IN WHITE PINE.

An allotment of two thousand dollars has been made for the purpose of checking an outbreak of the mountain pine beetle in the white pine stands of the Kootenai National Forest. This outbreak, which is believed to be in its incipency, lies in a splendid body of 67,000,000 B.F. of white pine. The work will be started early in May and an attempt will be made to make a one hundred per cent clean up of the infestation. This project will be under the entomological supervision of the Coeur d'Alene Station.

J.C.Evenden.

ANOTHER ALASKAN DEFOLIATION

Reports have come in from the Chugach National Forest in Alaska that large areas of western hemlock and Sitka spruce are being defoliated. An identification of the insects by Busck and Heinrich shows the defoliator to be Peronea variana Fernald, the common name of which is the "Black-headed spruce bud worm". This is the same insect which defoliated many thousands of acres of western hemlock and Sitka spruce on the Tongass National Forest in south eastern Alaska during the period 1918-1922. Nearly all of the defoliated trees in the Tongass defoliation recovered and this was particularly true of the Sitka Spruce since this tree was not defoliated as heavily as the western hemlock. Forest officers are carefully watching the progress of the Chugach outbreak of the "Black-headed spruce bud worm".

A.J. Jaenicke.

EVENDEN VISITS PAID ALTO LABORATORY

J. C. Evenden, in charge of the Coeur d'Alene Forest Insect Field Station, spent March 9th to 12th at the Palo Alto Laboratory. The work of the field season of 1925 was reviewed and discussed and plans were made for the work to be conducted during the season of 1926.

Evenden carefully and critically examined our core measuring machine and made some pointed remarks about our filing system. Otherwise we came out about even. He inveigled us into parting with a lense holder which we have had in our possession for over twenty years and we "copped" him out of the Yellowstone Park which he has guarded carefully for a long time.

H.E. Burke.



### FOREST INSECT EXHIBIT AT SAN BERNARDINO

The Southern California Orange Show which was held at San Bernardino during the latter part of February had one of the best forest insect exhibits yet installed at an affair of this kind. The exhibit was planned and set up by County Forester R.M. Tuttle to show the significance of forest insect damage on the summer home areas in the San Bernardino mountains.

The exhibit consisted of a group of young pine trees which were set up in the exhibition building as though growing under natural conditions. Several of these had been killed by insects and showed the characteristic red foliage. The exhibit also contained a yellow pine log infested by the western pine beetle and several rikor mounts containing specimens of the more important insects.

The winter control work on the San Bernardino project has been making very encouraging headway. I spent the period from February 25 to March 3 on this area and found conditions advanced somewhat beyond normal so that an early emergence of the insects is to be expected. The Forest Service had the work on the Federal Lands nearly completed and the Arrowhead Lake Company had entirely worked over their own holdings. Mr. Tuttle, who is working up the cooperation with the private owners, expected that the control work on the remainder of the patented lands would be completed in a short time.

J.M. Miller.

### A WASHINGTON VISIT.

I spent several days of early January in the Washington Offices of the Division of Forest Insects and the Forest Service. The opportunity to talk over the field problems with the administrative men and the specialists gave me a new slant on my work in Oregon and Washington. It encouraged me to find in the Bureau and the Forest Service an unusually keen appreciation of the magnitude and difficulty of the western forest insect situation.

At Cornell University, I again met Norman Cutler, formerly of the Canadian Entomological Branch and until recently engaged in forest insect work in British Columbia under the supervision of Ralph Hopping. Cutler is teaching and working for his doctor's degree at the same time. He is much interested in working out the distinguishing characteristics of the larvae of the various species of *Dendroctonus*.

A.J. Jaenicke



## WHY DID THE KAIBAB INFESTATION STOP?

Mr. C.B. Morse writing in the Forest Service Daily News - Intermountain Region of March 15th says in part:-

"Why has the Kaibab infestation suddenly gone from epidemic to endemic (normal) condition? How should I know? If we just knew that we'd be in a good way toward solving our insect problem. The Bureau of Entomology are studying this and we hope that they will soon determine the governing factors. Not being an entomologist and therefore not responsible for an entomological opinion, I feel safe in guessing that the decline in the infestation is due to a combination of causes. Among them are certainly (1) predators, (2) parasites and (3) man. The order of importance? You guess. Among other factors are probably (1) weather, (2) fungi. Maybe climatic conditions are the most important of all, but we don't know yet what effect climatic conditions have.

"I am convinced of one thing, however, and that is that the "man" factor or cause can not wholly be ignored. Surely the killing of the billions of beetles in the treatment of 45,093 trees had some effect - probably in hastening the decline and certainly in saving a lot of timber that the bugs we killed would otherwise have killed."

Certainly the man factor cannot be ignored. The recent survey showed that the treating of some 30,000 trees on the north end of the mountain during 1924 undoubtedly did break up this advancing infestation and on the basis of what happened in adjoining untreated section, saved fully 45,000 trees from being killed by the attacks of 1924. But the man factor will not explain the uniform and sudden drop which occurred thruout the plateau in the attacks of 1925. This must have been caused by some factor with a much wider influence than control work possibly could have had.

Study of a large number of increment cores taken from living and killed trees during 1925, suggests that the climatic factor is probably the most important of all. The ring history of the trees shows that severe epidemics have occurred at intervals of about 20 years and have lasted for approximately five years each time. Epidemics dating back to 1855 have in each instance corresponded with drought period for the region, and with a full sunspot cycle. This in spite of the fact that this beetle shows no preference for slow growing trees. In fact cores from a series of paired killed and living trees where the beetles apparently made a selection showed a 10% preference on their part for the faster growing ones. Moreover the recent epidemic corresponded with the sunspot cycle alright but was a year or so ahead of the drought. Perhaps the sunspots had the greatest influence.

At present these studies are in progress. Perhaps in time we will watch the sunspots for a sign to tell us when to start our beetle control.

F. P. Keen.



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